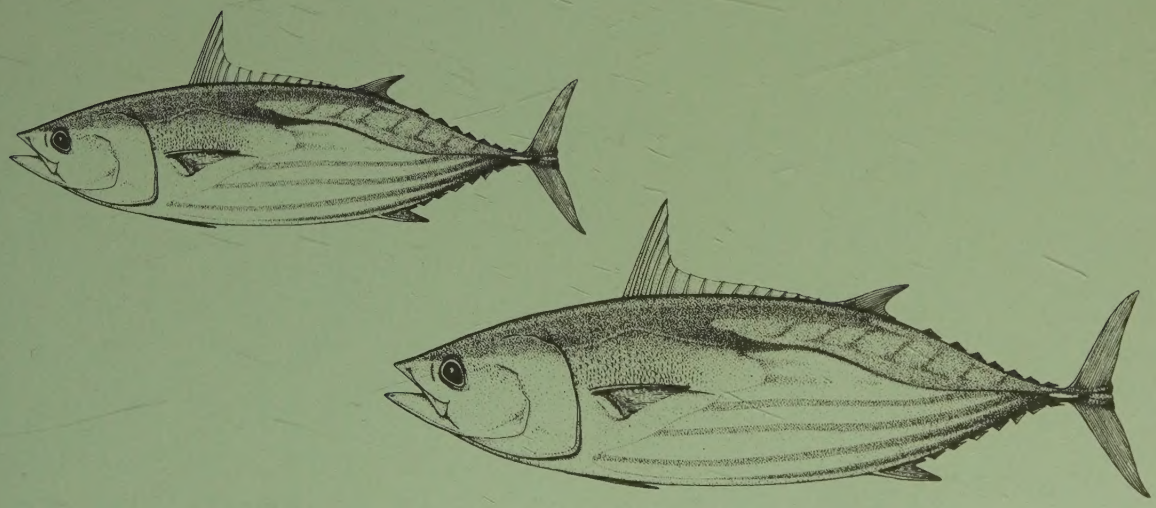
October 1974
No. 10

FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



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OCTOBER 1974 , No. 10

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PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) a narrative description of subsurface temperature structure for parts of the North Pacific, 4) charts of winds and pressures for the eastern North Pacific, 5) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 6) charts of subsurface termperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. This is a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

L.E. Eber, Leader
Fishery Information Systems
Southwest Fisheries Center
La Jolla, California

The Secretary of Commerce has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this publication approved by the Office of Management and Budget, August 20, 1973; this approval expires June 1976.

Submitted for publication - November 19, 1974

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L.Eber (Figures 4 and 6)
F.Miller (Figures 8 and 9)
J.Renner (Figures 1,2,3,5,7, and 15-day Supplement)
J.F.T. Saur (Figures 10,11, and 12)

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Pacific Environmental Institute, Fisheries Research Board of Canada, West Vancouver, British Columbia, by L.F. Giovando from observations by S.G. Westhaver at Langara Island Light; D.L. Kupillas at Cape St. James Light; L. Collins at Kains Island Lightstation; J.G. McNeil at Amphitrite Point Light.
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Expendable bathythermograph and salinity observations are made by the mates and engineers of the Hawaiian Queen and Californian of Matson Navigation Co. The data are processed under supervision of D.R. McLain at the NMFS Pacific Environmental Group, Monterey, using computer facilities of the Fleet Numerical Weather Center. The project is partially supported by the National Science Foundation and the Office of Naval Research under Government Order NAonr-9-74.

Sea Surface Temperature and Environmental Conditions

L. EBER AND F. MILLER

Eastern North Pacific

Seasonal cooling was less than normal in the central portion of the eastern North Pacific, during October 1974, and somewhat greater than normal in the Gulf of Alaska and much of the area off the U.S. West Coast. Consequently, the region of negative deviations between 30° and 45°N, west of 150°W (Figure 5) was a little smaller and weaker than in the previous month. In contrast, negative deviations appeared in the Gulf of Alaska, where conditions had formally been warmer than normal, and off northern California negative deviations spread seaward to 130°W. A broad area of water with warmer than normal temperatures surrounded the central cold sector on three sides and separated it from the relatively cool regions adjacent to the North American coast. Positive deviations increased since September in the zone 45-50°N out to 180° W. Northeast of Hawaii, positive deviations decreased. Allowing for these changes in intensity and shape of the principal features, the overall pattern of anomalous conditions in October was similar to that in September.

The surface wind field was characterized by a strong anticyclonic circulation centered about 38°N, 138°W, associated with high pressures, 4-6 millibars above normal, extending northeastward across the Washington and British Columbia coasts (Figures 1 and 2). Pressures were below normal, farther west, by as much as 8 millibars near 43°N, 178°W. The intervening gradient gave rise to anomalous northward resultant flow which contributed to the reduced seasonal cooling in the central sector of the eastern North Pacific. Persistant southward flow occurred east of the anticyclonic center, off northern California, and was especially strong during the 1st and 3rd weeks of October. This caused a resurgence of the summer upwelling pattern which was reflected by an increase in negative deviations from normal temperatures.

Western North Pacific

Departures from normal seasonal cooling brought widespread changes in the anomalous sea surface temperature pattern in the western North Pacific. The large pool of relatively warm water which emerged east of Hokkaido and northern Honshu, Japan in September was greatly reduced in size and intensity (Figure 6). Temperature deviations decreased from above, or slightly below, normal to more than 2°F (1.1°C) below normal in much of the 30-40°N latitude zone, east of 160°E. Conditions in the areas west of 140°E and north of about 48°N changed from predominantly cooler than normal to warmer than normal.

Atmospheric circulation in the western North Pacific was characterized by transient anti-cyclonic systems during most of the month which appeared to stabilize into a pattern of westerly flow, north of 30°N, in the final week. Except for a possible association of increased cooling with high average wind speeds, which may have caused strong vertical mixing in the surface layers, there is no obvious correlation of anomalous temperature changes and surface wind patterns.

Eastern Tropical Pacific

During October, sea surface temperatures in the southern hemisphere usually reach their seasonal minimum showing very little variation from September. The equatorial ocean front remains strong in its north-south temperature gradient particularly east of 110°W.

Over most of the eastern tropical Pacific, the sea surface temperature pattern in October 1974 (Figure 8) was similar to the long-term mean pattern, and the anomalies (Figure 9) did not reflect any significant change from September 1974 in most areas. Temperatures along the coast of South America appeared to remain slightly below normal, based on a small number of ship reports. The southern hemisphere subtropical high pressure cell remained strong in October. Thus, the surface pressure gradient and surface winds were above normal along the South American coast.

The equatorial ocean front was particularly strong in October 1974. The maximum surface temperature gradient was located about 3° of latitude north of its mean position in the area east of 90°W and also between 100° and 105°W.

In the fishing grounds between 7° and 12°N, east of 100°W, sea surface temperatures were 2-4°F (1.1-2.2°C) below normal (Figure 9). This anomaly pattern was set up in September 1974 as a result of the steady southerly winds of 12-16 knots and frequent squalls over this area. The same conditions persisted in October.

Subsurface Temperature Structure in the Northeast Pacific Ocean

J. F. T. Saur

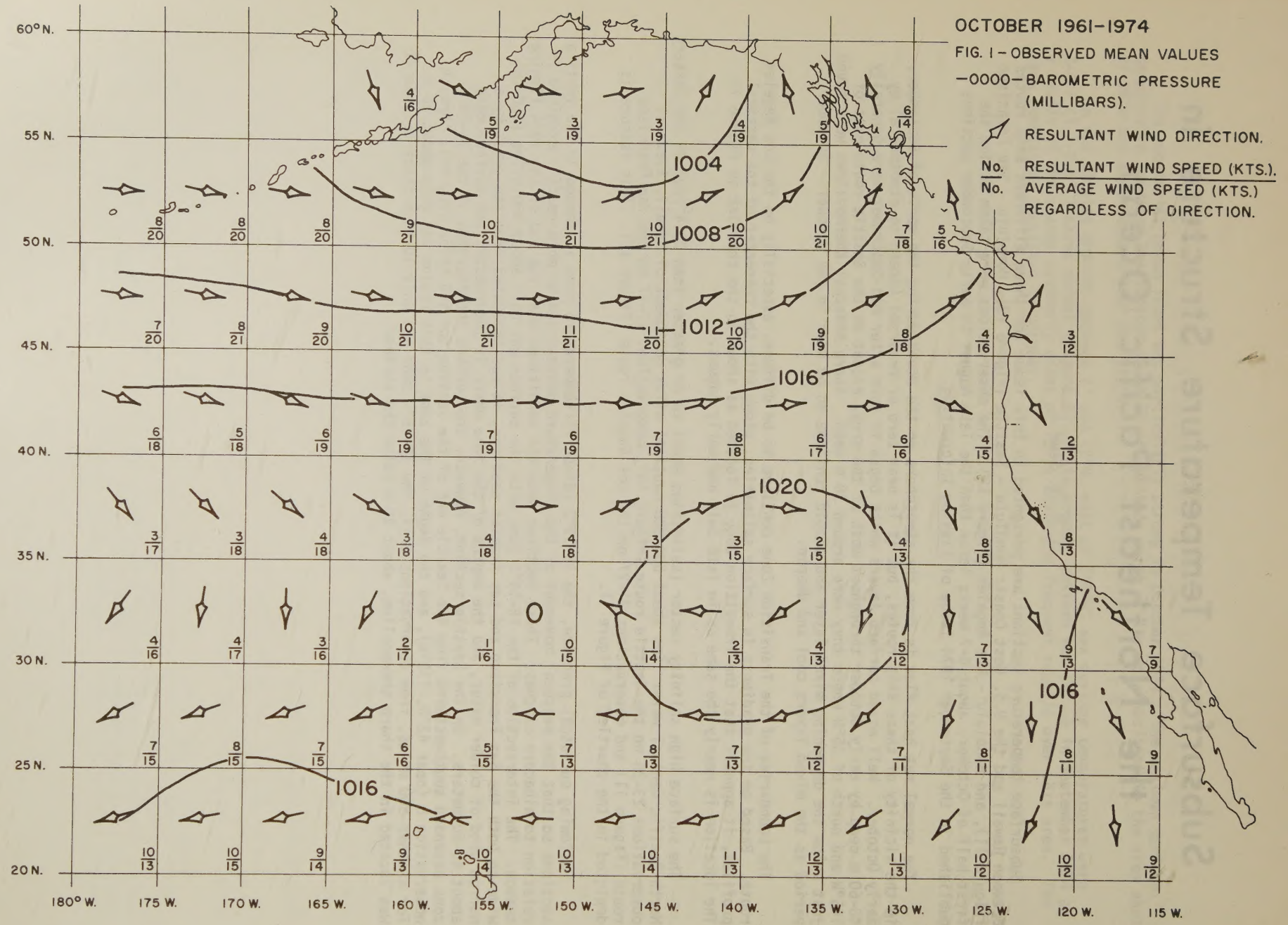
Subsurface temperature sections are presented in this issue for three different ship routes between Hawaii and the U.S. West Coast: Honolulu - Seattle (Figure 10), Honolulu - San Francisco (Figure 11), and Honolulu - Los Angeles (Figure 12). The observations were taken during the first half of October, about 6-7 weeks later than the late August to early September sections published in the September 1974 issue of Fishing Information.

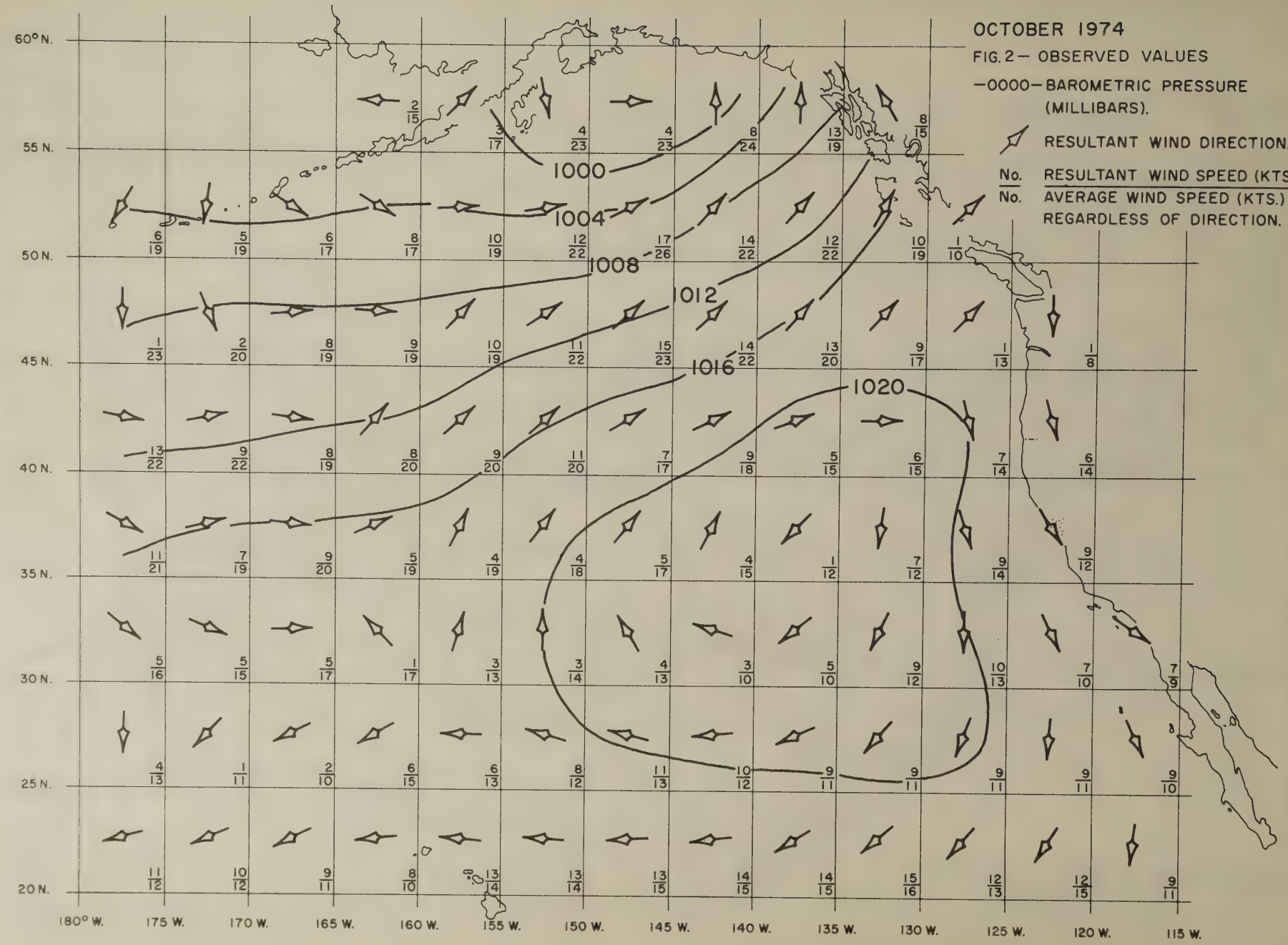
The normal net heat flux is from the atmosphere to the ocean during the month of September, in the vicinity of these ship routes, but it is near zero or reversed (ocean to atmosphere) by early October. Well mixed surface layers which began to form after mid-September were generally 40-60 m deep by early October throughout most of the area, except on the Seattle route east of 145°W and north of 35°N where they were around 30 m deep. Sharp seasonal thermoclines were found just below the deepening mixed layer and should continue to be seen in the October - November period as the mixed layers cool and deepen.

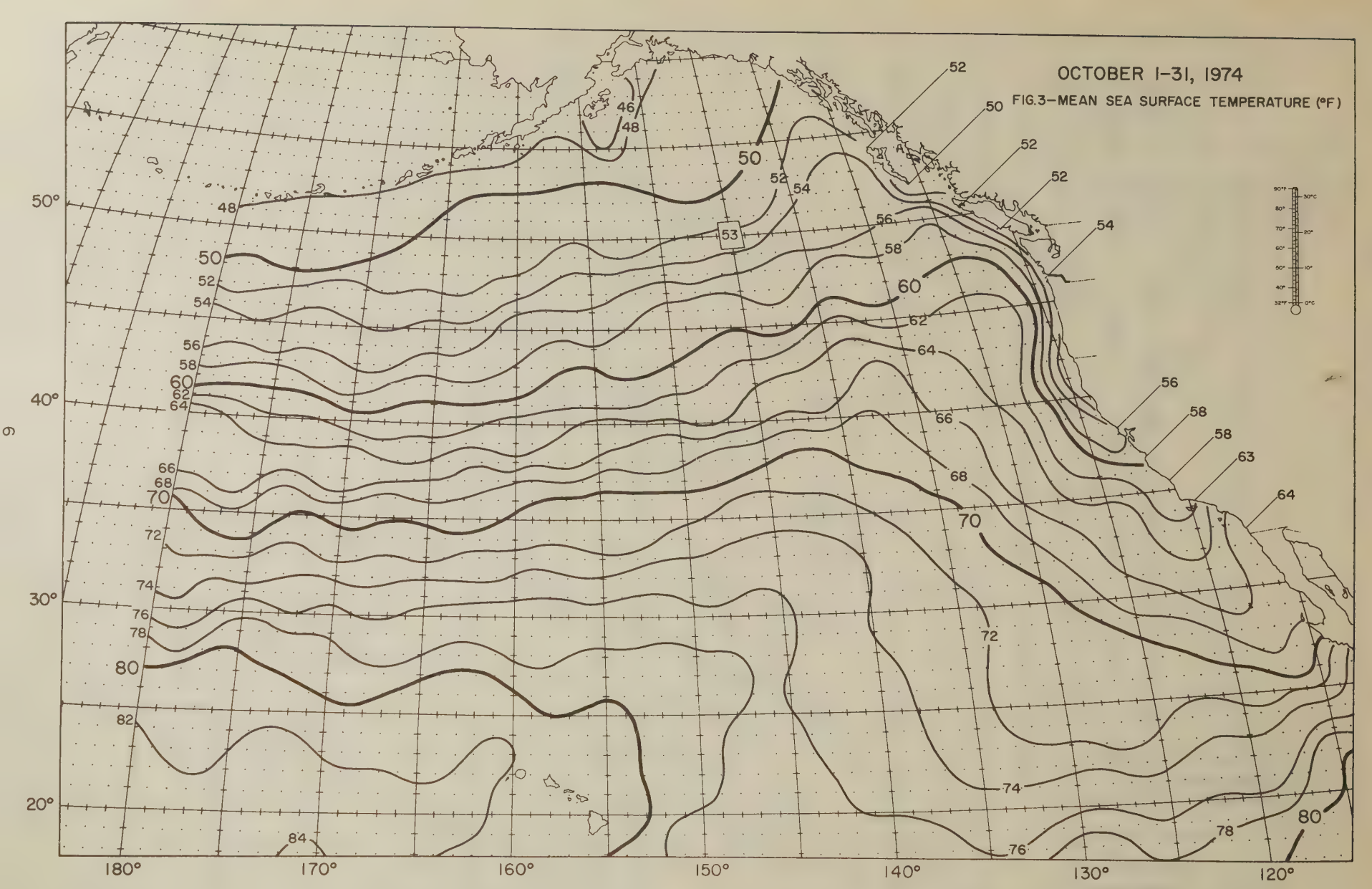
The boundaries of the Transition Zone continue to be diffuse, especially on the Los Angeles route. Based on the gradients in surface salinities, along with the character of the vertical profiles, it appears that the Transition Zone is located as shown in the chartlet in Figure 11. The location is nearly the same as in late July and early August.

The surface high salinity sector (salinities equal to or greater than 35.4°/oo) of the Eastern North Pacific Central water lies about 600-800 nautical miles northeast of Hawaii, i.e., at observations 23-26 on the Seattle route (Figure 10), observations 11-17 on the San Francisco route (Figure 11) and observations 21-27 on the Los Angeles route (Figure 12). This feature is depicted in the chartlet of Figure 11.

Following our usual practice, the 16-19°C (61-66°F) temperature zone is shaded in the vertical sections so that the seasonal movement of the temperature pattern can be more readily examined in relation to albacore catches. These sections show the conditions near the end of the 1974 fishing season. The intersection of the 16-19°C zone with the surface was only about 300 miles (550 km) wide on both the San Francisco and Los Angeles sections, it was separated from the coast by a narrow band of colder water, and the depths of the zone where it intersected the surface were about 40-60 meters. On the Seattle section, however, the surface intersection of the 16-19°C zone extended southwestward from the Seattle end of the section for 500 miles (900 km), through observation 8 (near 42°N, 135°W), and the depth of the zone in this region was only about 30 m. For another 500 miles, from observations 8-17, the 16-19°C zone was only 10-20 m thick because it was located in the sharp thermocline, about 50 m below the surface.

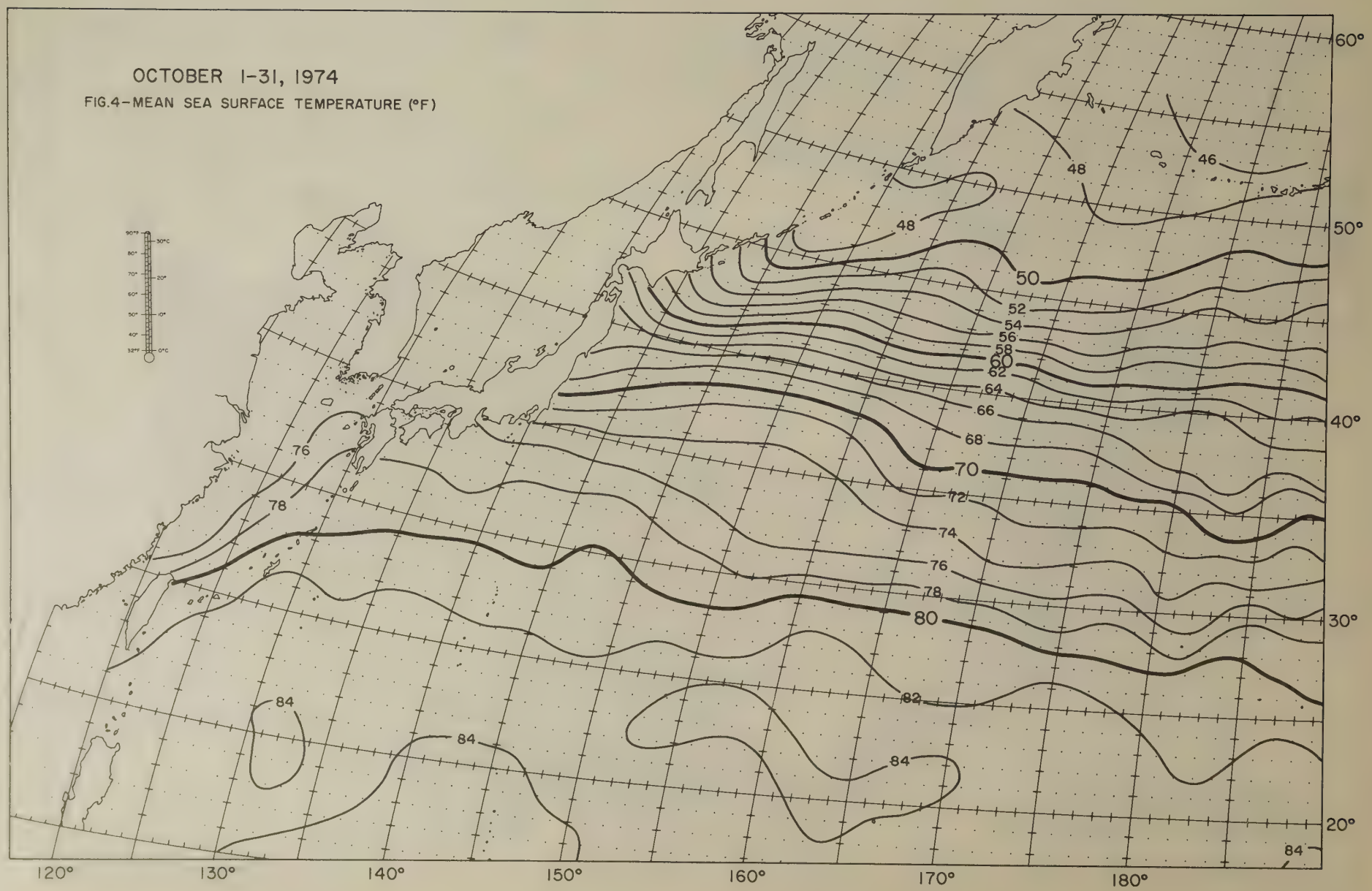

OCTOBER 1961-1974
FIG. 1 - OBSERVED MEAN VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1004
1008
1012
1016
1020
0
1016
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

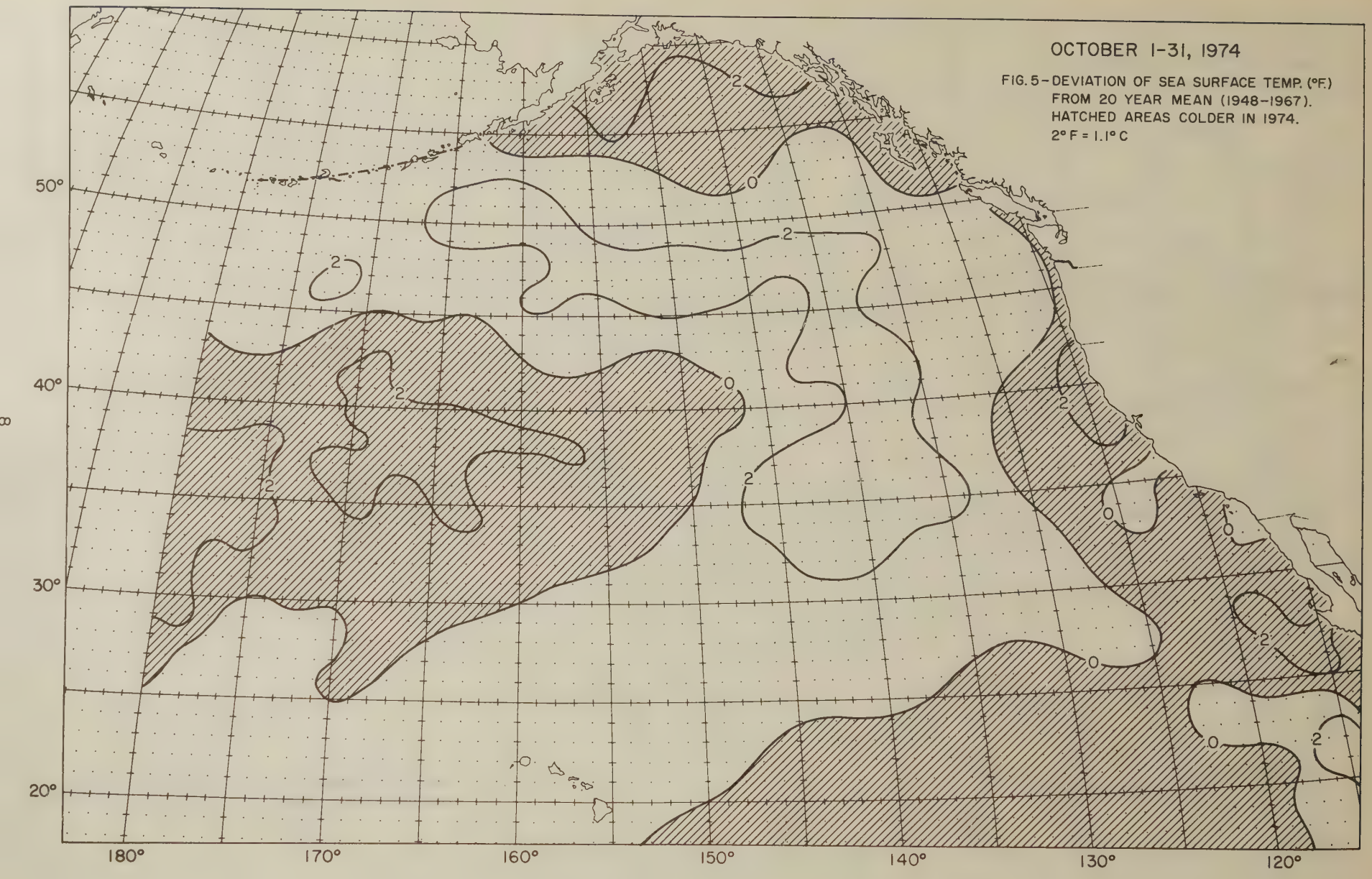

OCTOBER 1974
FIG. 2 — OBSERVED VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1000
1004
1008
1012
1016
1020
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.


OCTOBER 1-31, 1974
FIG.3—MEAN SEA SURFACE TEMPERATURE (°F)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
53

OCTOBER 1-31, 1974

FIG.4-MEAN SEA SURFACE TEMPERATURE (°F)




OCTOBER 1-31, 1974
FIG. 5 - DEVIATION OF SEA SURFACE TEMP. (°F.) FROM 20 YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1974. 2° F = 1.1° C
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
2
0

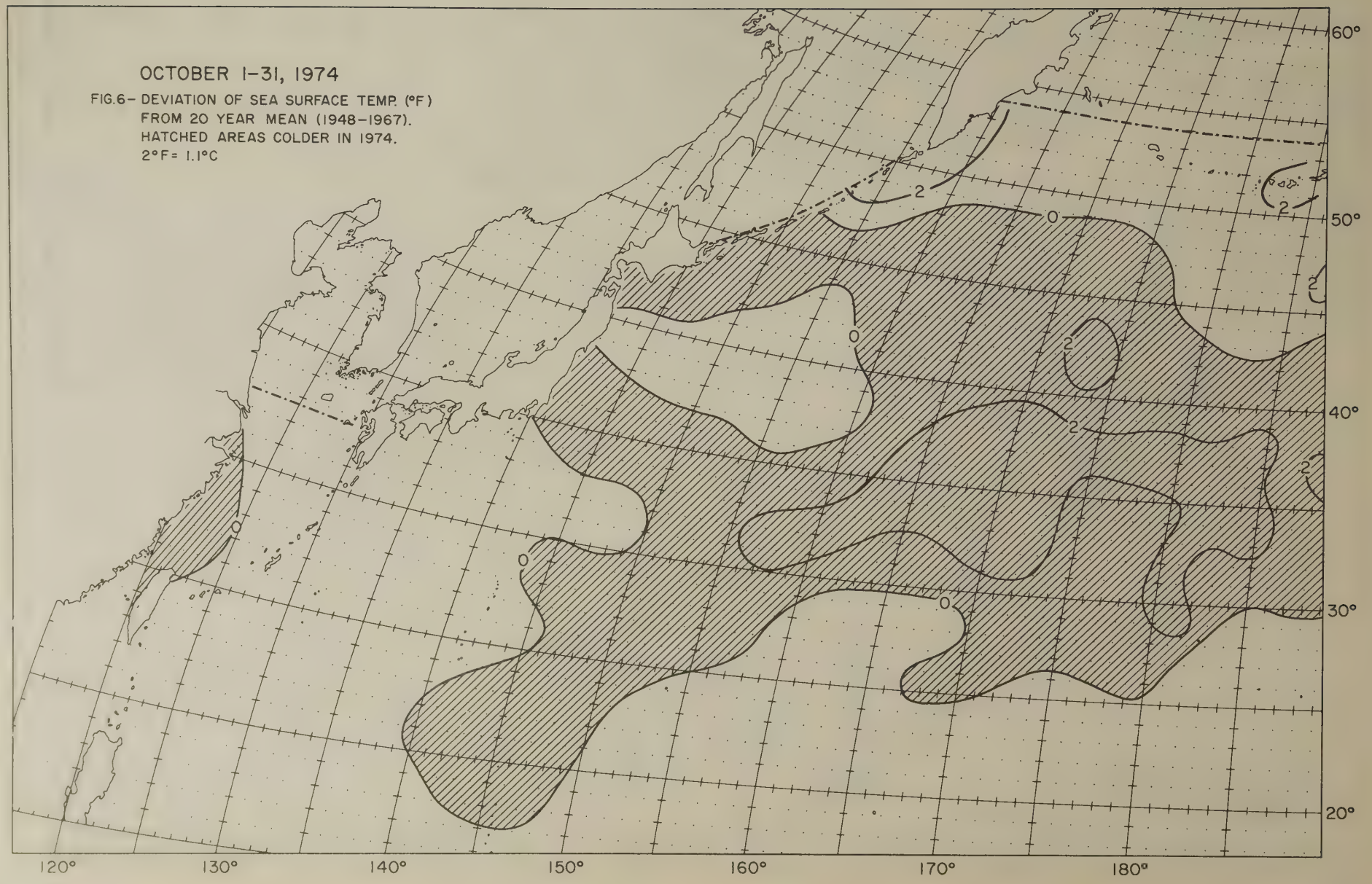

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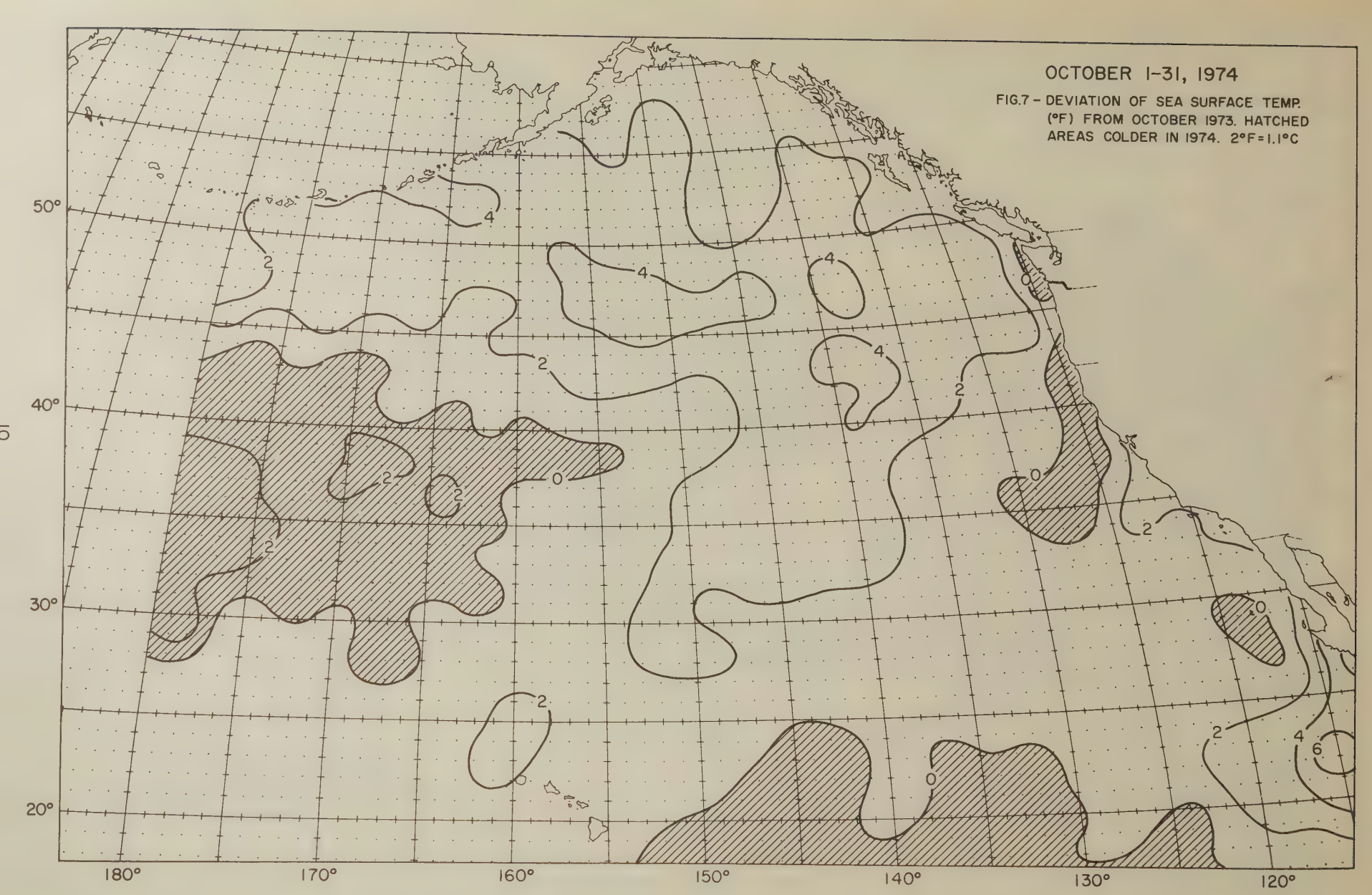
FIG.6- DEVIATION OF SEA SURFACE TEMP. (°F)
FROM 20 YEAR MEAN (1948-1967).
HATCHED AREAS COLDER IN 1974.
2°F= 1.1°C
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°
0
2


OCTOBER 1-31, 1974
FIG.7 - DEVIATION OF SEA SURFACE TEMP. (°F) FROM OCTOBER 1973. HATCHED AREAS COLDER IN 1974. 2°F=1.1°C
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2
4
6

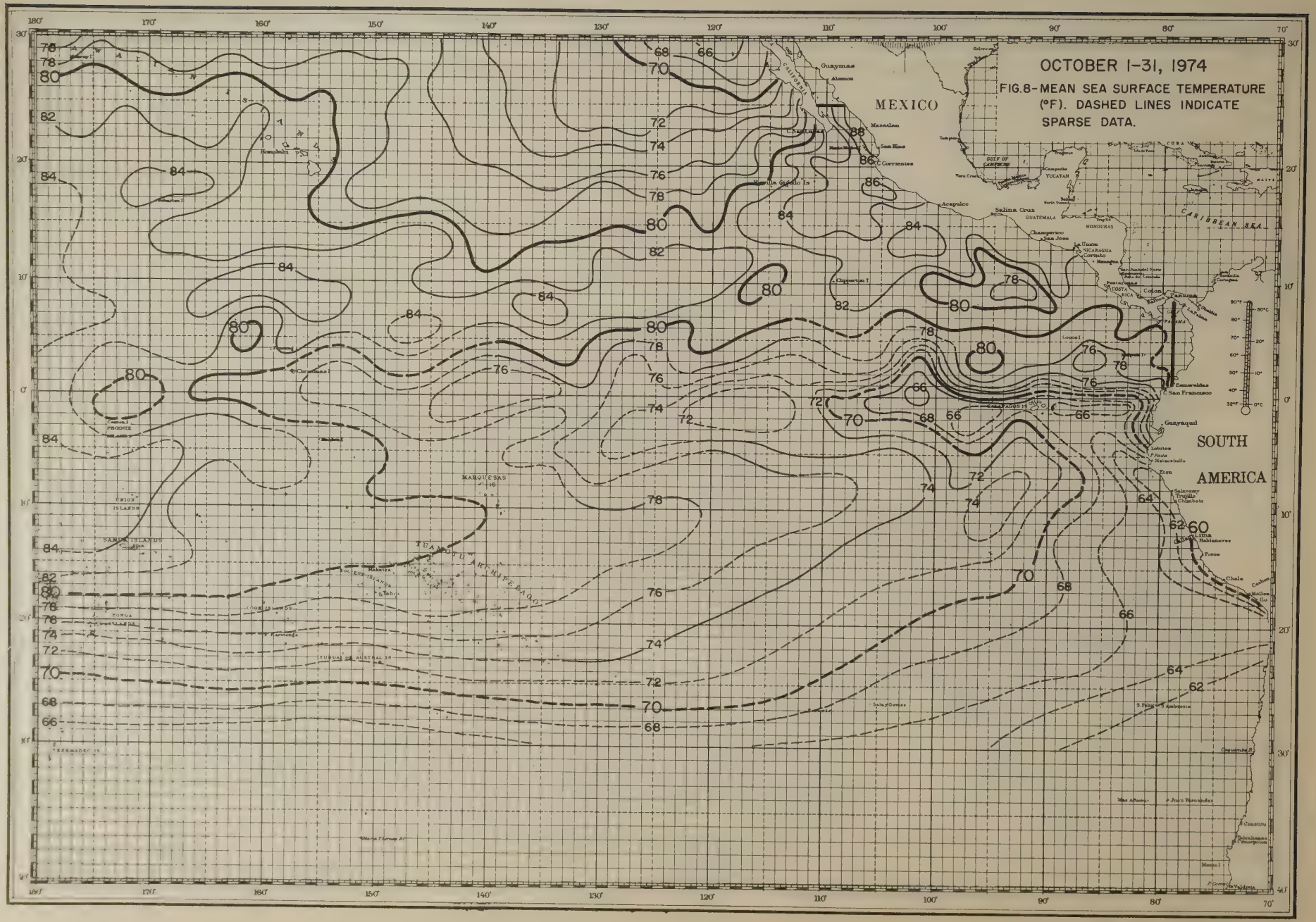

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FIG.8-MEAN SEA SURFACE TEMPERATURE (°F). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CALIFORNIA
GULF OF CAMPECHE
YUCATAN
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
CUBA
HAITI
Guaymas
Mazatlan
San Blas
Acapulco
Salina Cruz
Champerico
Corinto
Balboa
Colon
Manzanilla
Esmeraldas
San Francisco
Guayaquil
Salaverry
Trujillo
Chimbote
Callao
Lima
Pisco
Chala
Mollendo
Arica
Iquique
Antofagasta
Coquimbo
Valparaiso
Juan Fernandez
Mas Afuera
Mas a Tierra
MARQUESAS
TUAMOTU ARCHIPELAGO
SAMOA ISLANDS
TONGA
BERMUDES
Honolulu
Clipperton I
Cocos I
Malpelo I
Gorgona I
Gallo I
Malpelo
Isla Gomez
Isla Pascua
Isla Sala y Gomez
Isla de Pascua
Isla Juan Fernandez
Isla Mas Afuera
Isla Mas a Tierra
Isla Santa Ambrosio
Isla San Felix
Isla Salas

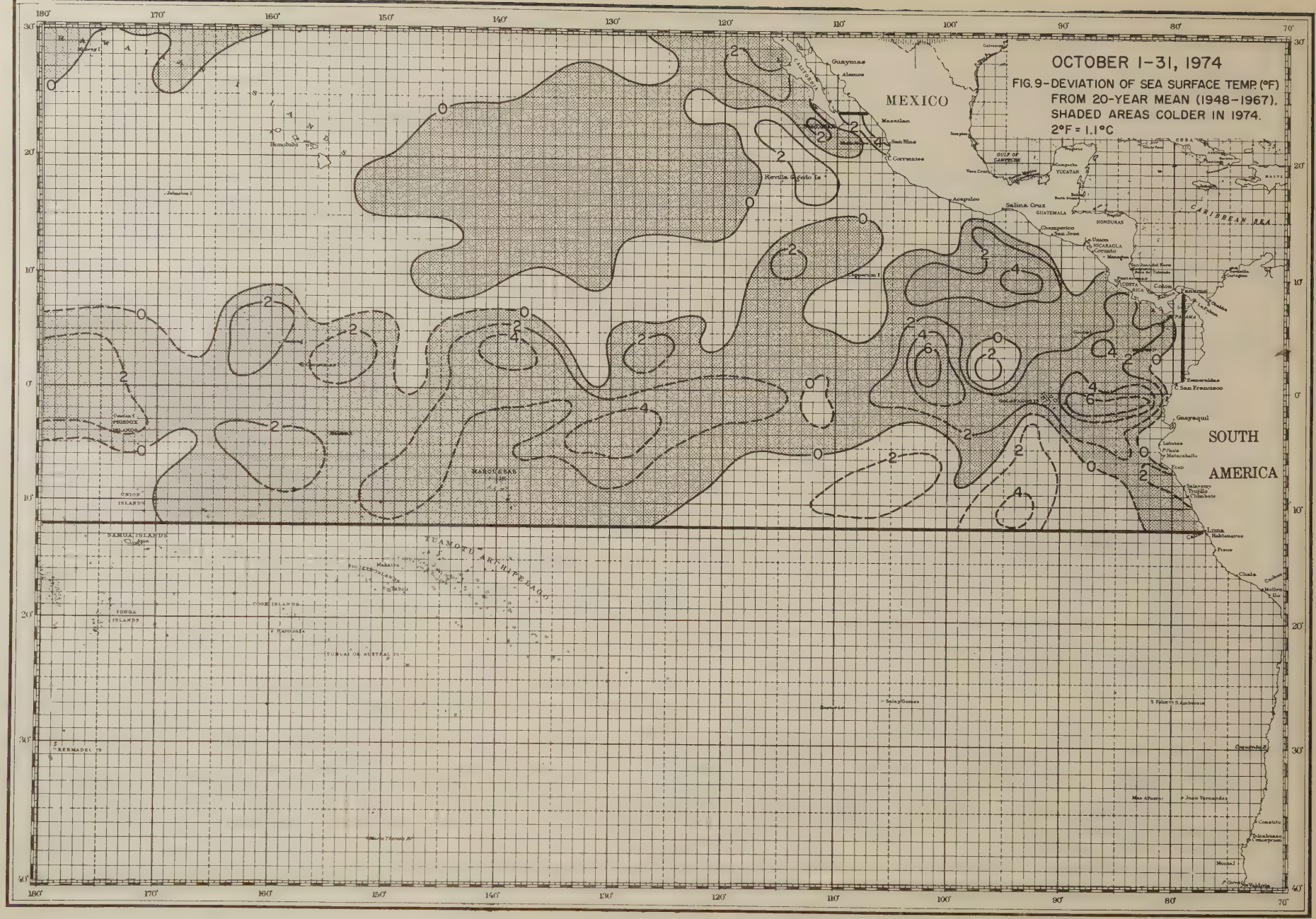
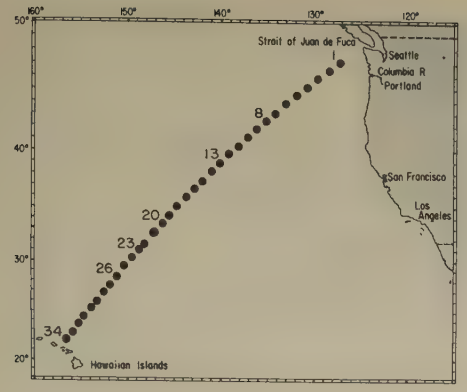
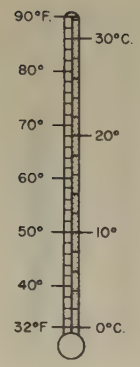

OCTOBER 1-31, 1974
FIG. 9-DEVIATION OF SEA SURFACE TEMP. (°F) FROM 20-YEAR MEAN (1948-1967). SHADED AREAS COLDER IN 1974.
2°F = 1.1°C
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
YUCATAN
GULF OF CAMPECHE
Guaymas
Mazatlan
San Blas
Acapulco
Salina Cruz
Champerico
Corinto
Colon
Panama
Esmeraldas
San Francisco
Guayaquil
Lobitos
Talara
Matacaballo
Salaverry
Trujillo
Chimbote
Lima
Callao
Pisco
Chala
Mollendo
Arica
Iquique
Honolulu
HAWAIIAN ISLANDS
Kerville Gloriosa Is.
Jarvis I.
Palmyra I.
Christmas I.
Canton I.
PHOENIX ISLANDS
UNION ISLANDS
SAMOA ISLANDS
TUAMOTU ARCHIPELAGO
Makatea
Tahiti
TONGA ISLANDS
COOK ISLANDS
Rarotonga
TUBUAI OR AUSTRAL IS.
KERMADEC IS.
Salas y Gomez
S. Felix
S. Ambrosio
Juan Fernandez
Mas Afuera
Easter I.
0
2
4
6

FIGURE 10





HONOLULU — SEATTLE
(Makapuu Pt. — St. of Juan de Fuca)

SEPTEMBER 30–OCTOBER 6, 1974

CALIFORNIAN

VOYAGE 248

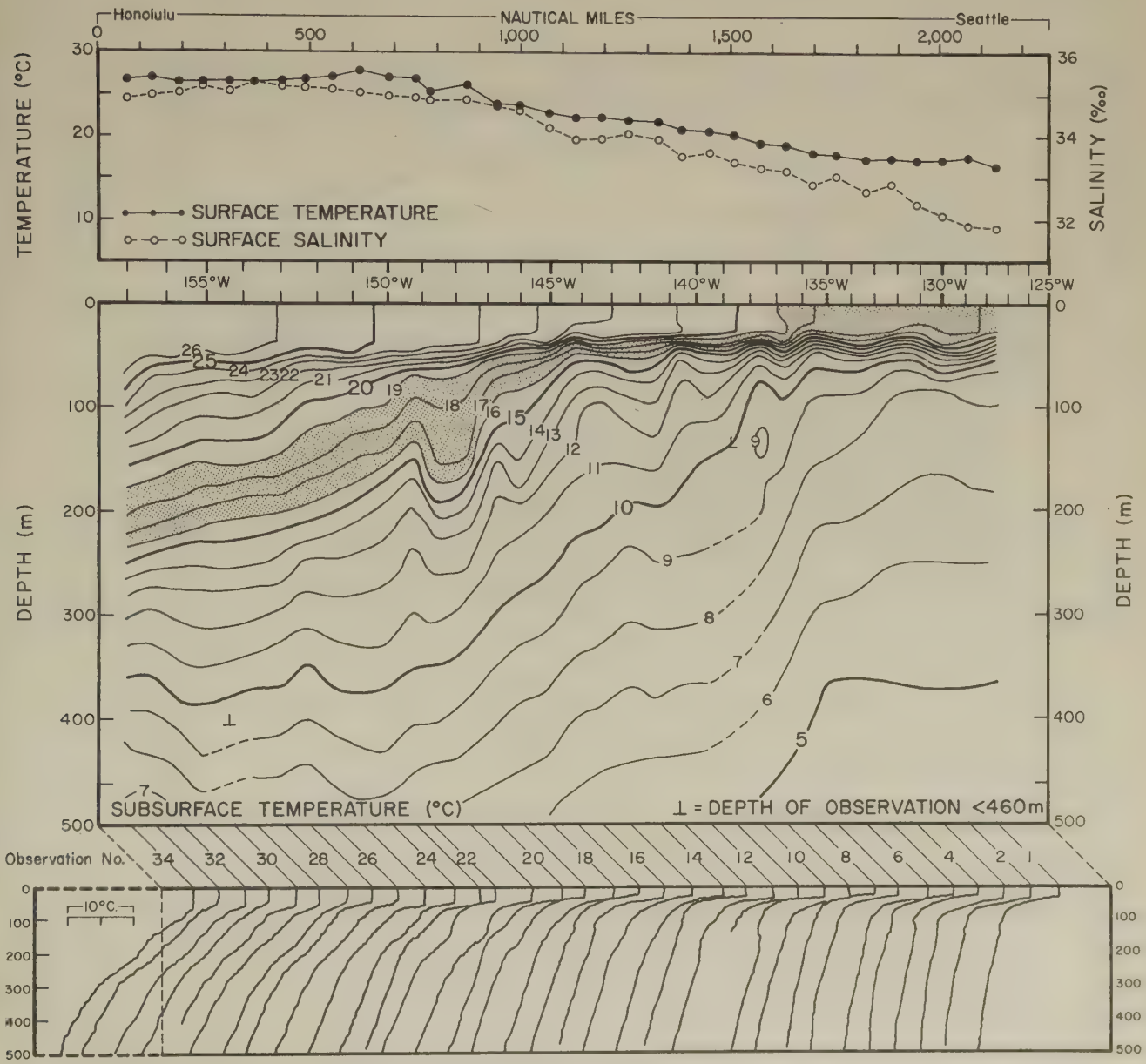
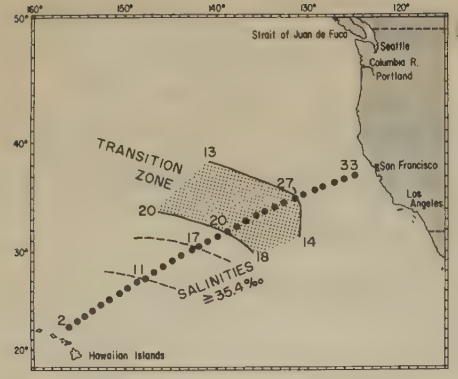
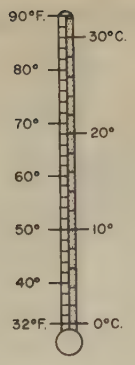


FIGURE 11





HONOLULU – SAN FRANCISCO

OCTOBER 10–15, 1974

CALIFORNIAN

VOYAGE 248

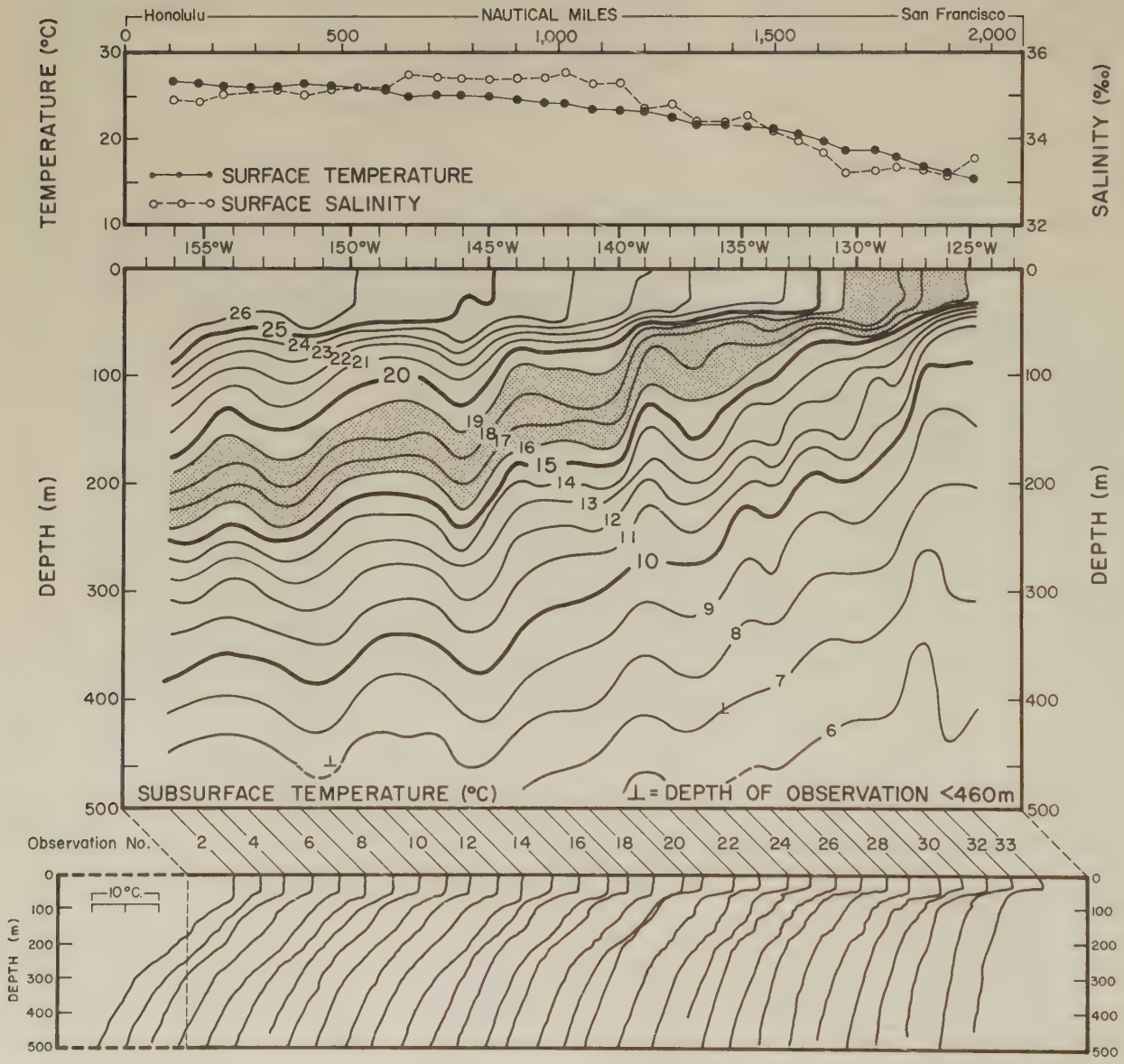
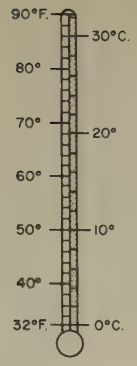


FIGURE 12

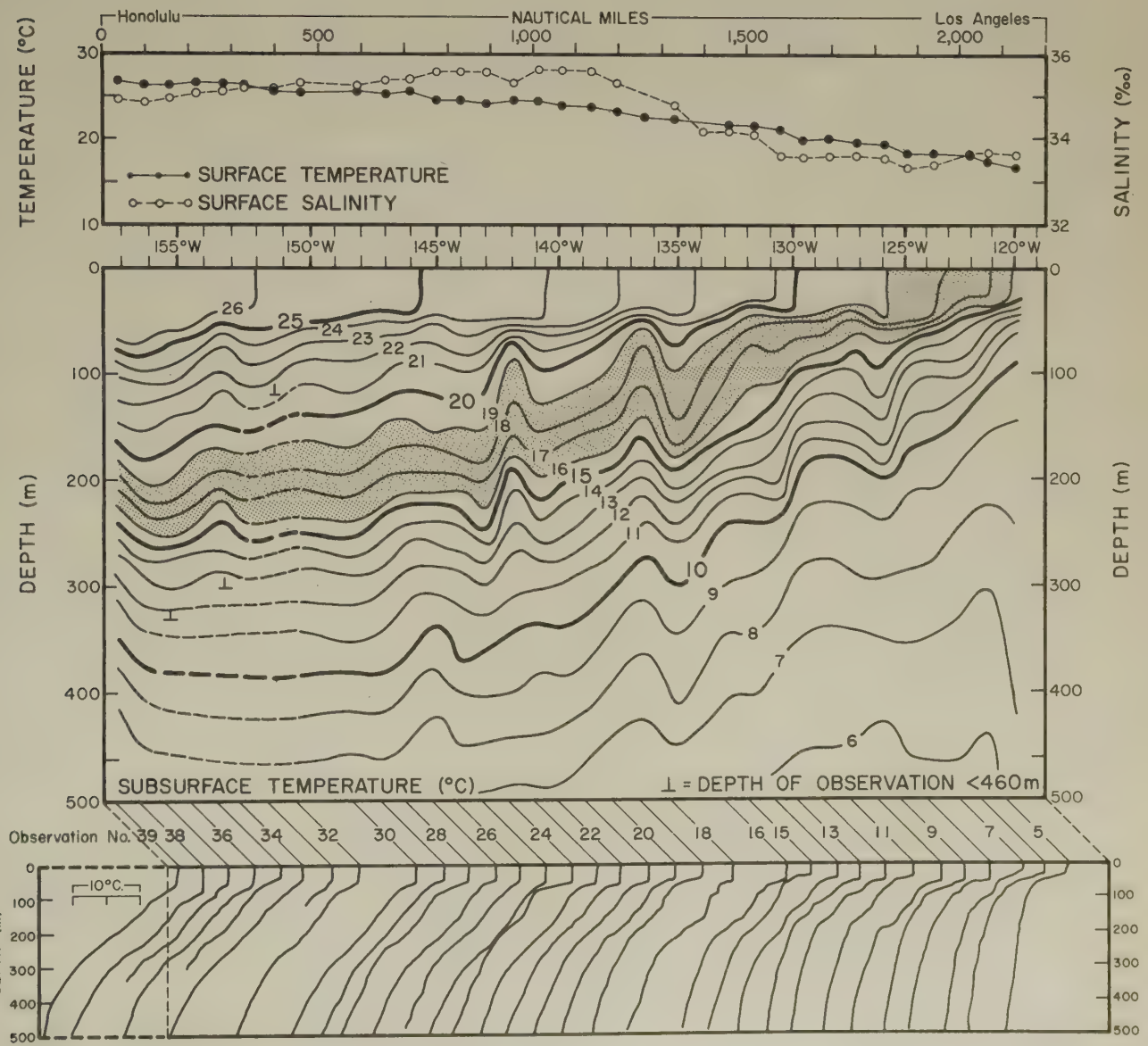


HONOLULU — LOS ANGELES

OCTOBER 6–11, 1974

HAWAIIAN QUEEN

VOYAGE 148



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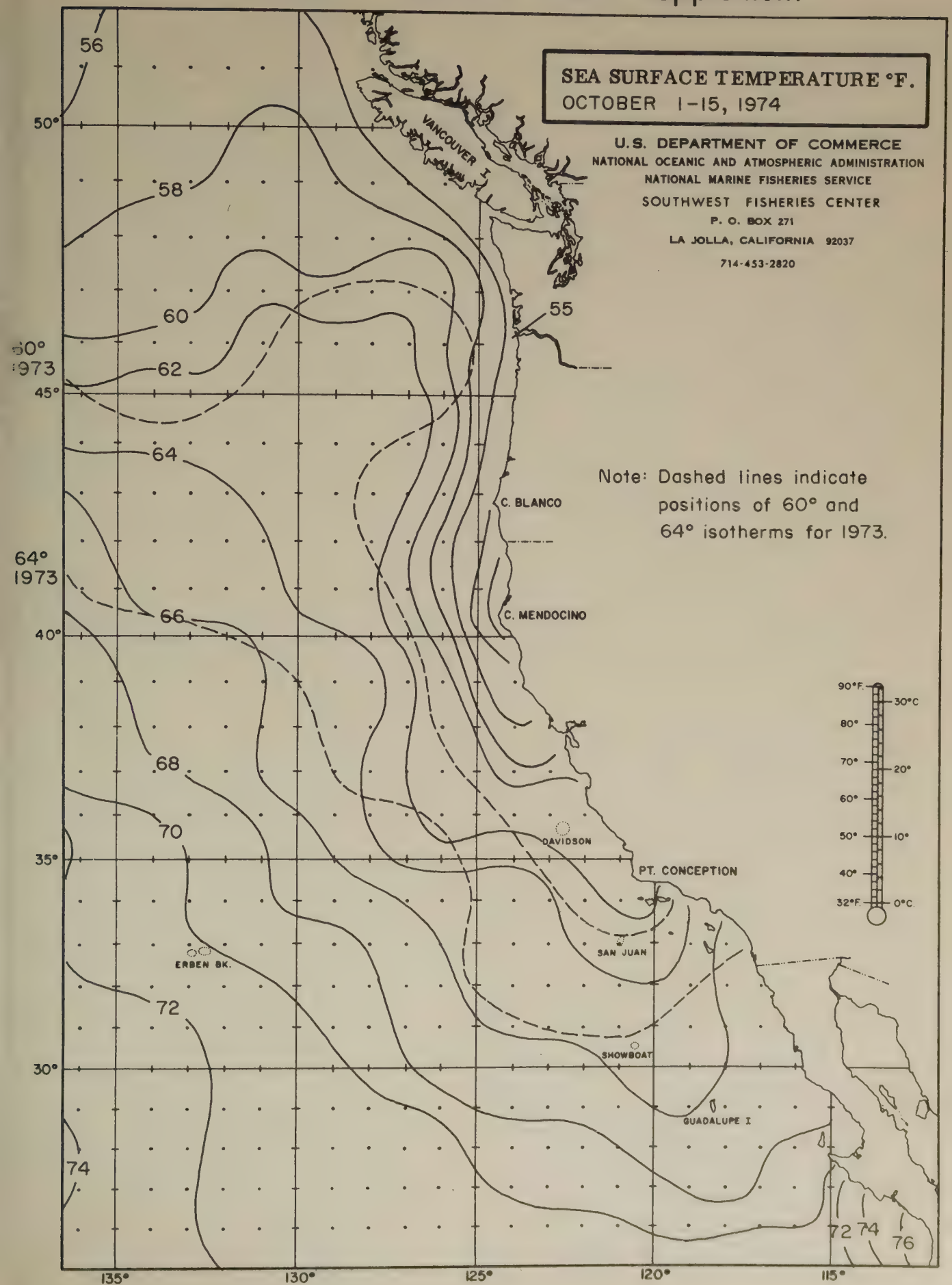

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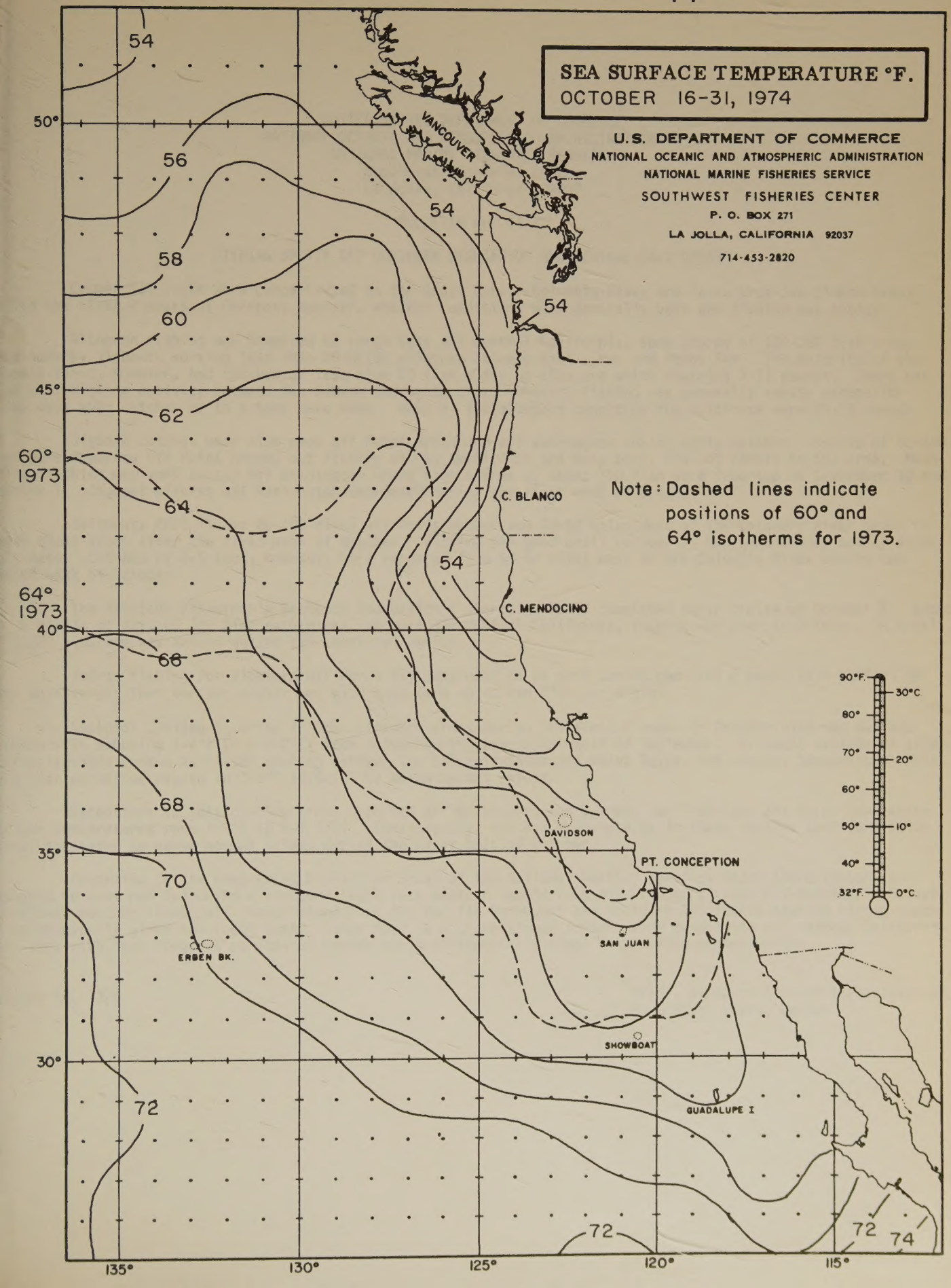

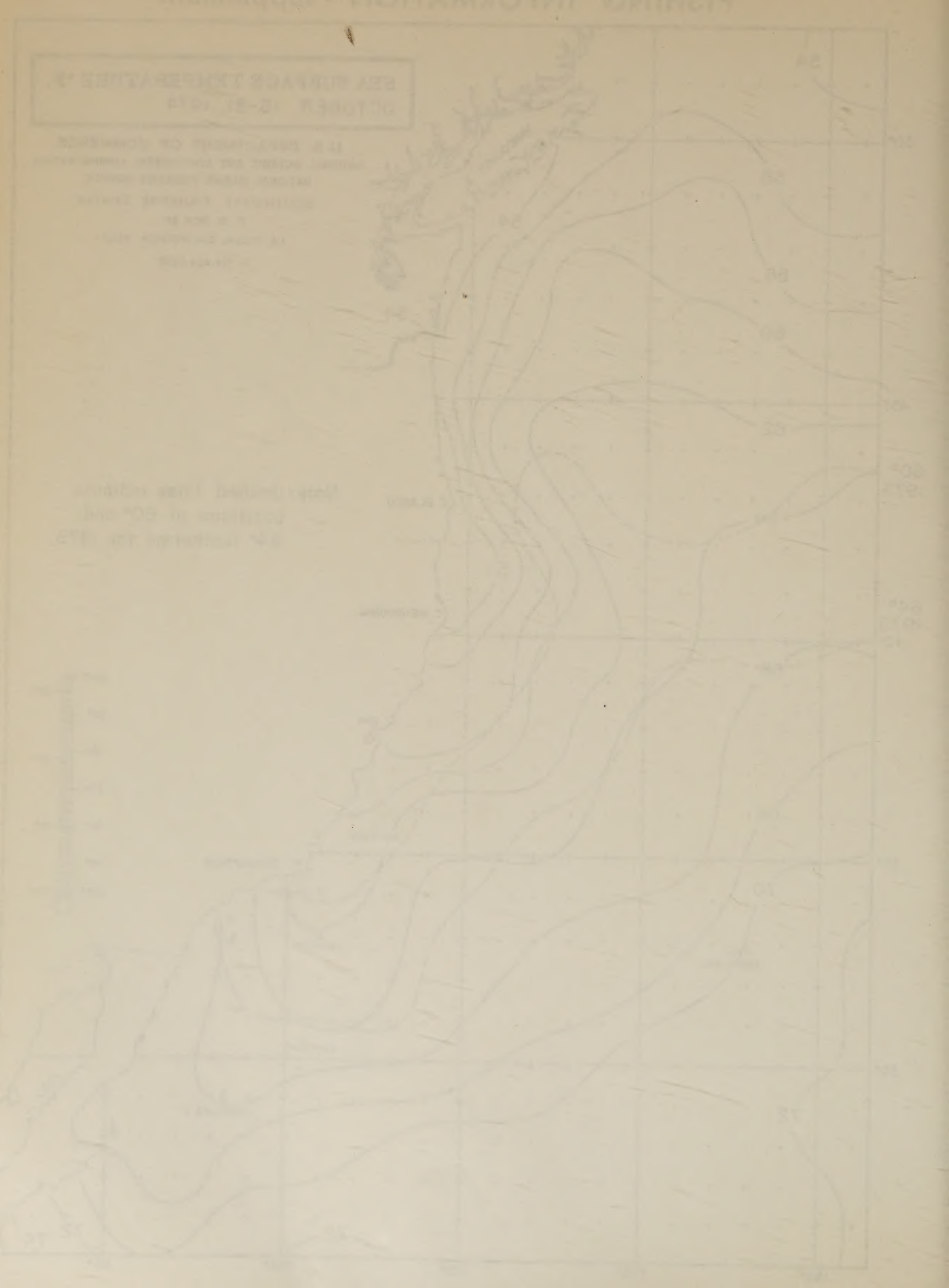

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92037

BULLETIN No. 74-10

FISHING SPOTTY OFF SOUTHERN WASHINGTON AND CENTRAL CALIFORNIA

Commercial boats were concentrated in the Grays Harbor-Columbia River and Santa Cruz-San Simeon areas during the first 2 weeks of October; however, weather conditions were generally poor and fishing was spotty.

Although fishing was hampered by rough seas off central California, some scores of 150-300 fish a day were made by jigboats working less than 60 miles offshore between Santa Cruz and Point Sur. The majority of the jigboat fleet, however, had catches of less than 50 fish a day on albacore which averaged 7-11 pounds. There was also bait fishing activity between San Simeon and Santa Cruz; however, fishing was generally spotty except for a few days when catches up to 6 tons were made. Many of the albacore caught by the baitboats were 20-30 pounds.

Jigboat catches were also made off Point Arena and off Washington during early October. Scores of 50-200 fish were reported off Point Arena, but fishing was on small fish and many boats did not remain in the area. Meanwhile, fishing was very spotty off Washington where high scores of about 100 fish were reported on September 30 and October 1. Jigboat efforts off Washington decreased during the first week of October.

Baitboats that fished 80-100 miles off Grays Harbor and 50-60 miles west of the Columbia River began to leave these areas after the first week of October. Fishing was good until October 3, but became very spotty after this date. Catches of 4-5 tons, however, were reported from 50-60 miles west of the Columbia River during the second week of October.

The American Fishermen's Research Foundation's chartered boats completed their cruise on October 8. Except for a couple of days of 100 fish catches by one boat off central California, fishing was poor in October. A total of 1,022 albacore was tagged during the chartered period.

Sports fishing for albacore off Morro Bay continued to be good during the last 2 weeks with catches on many days larger than one per angler and with some days up to ten fish per angler.

Seasonal cooling occurred in most offshore areas during the first 2 weeks in October with sea surface temperatures dropping 1-4°F (0.6-2.2°C) from values during the latter half of September. Frequent periods of strong northerly winds caused increased cooling between the Columbia River and Point Reyes, and coastal temperatures that were near normal decreased to 1-2°F (0.6-1.1°C) below normal values.

Exceptions to this cooling trend occurred off Washington and between San Francisco and Morro Bay, where surface temperatures rose 1-2°F (0.6-1.1°C). Consequently, coastal temperatures in these regions that were below normal increased to above normal values during the first half of October.

According to the Long Range Prediction Group of the National Weather Service, major storm systems are expected to continue following a northern track into western Canada from mid-October through mid-November. However, occasional weather fronts will move inland over the Pacific Northwest and northern California causing strong south to southwesterly winds and rough seas. Since fall is a transitional season, wind conditions off central California will vary with less frequent periods of strong north-northwesterly winds than during summer months.

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